U.S. Department of Agriculture
Natural Resources Conservation Service

MT-ENG-217
Rev. 12/02

MOISTURE BALANCE IRRIGATION SCHEDULING WORKSHEET

Field _____ Year _____
Crop _____
Planting date _____ Emergence Date _____
Soil name or texture _____

Factor	Season	
	1st 60 Days	Remainder of Season
Effective root zone depth or maximum soil depth-feet		
Available water capacity (AWC) inches		
Management allowed deficit (MAD) percent		
Management allowed deficit (MAD) inches		

Water application efficiency (Ea) _____ Percent

Days After Emergence (1)	Date (2)	Max Temp (F) (3)	Min Temp (F) (4)	Average Temp 1/ (F) (5)	Sunshine 2/ (L,M,H) (6)	Daily water use 3/ (in) (7)	Effective rainfall 4/ (in) (8)	Net Irrigation 5/ (in) (9)	Soil water deficit 6/ (in) (10)	Comments 7/ (11)
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MOISTURE BALANCE IRRIGATION SCHEDULING WORKSHEET

DIRECTIONS FOR USING WORKSHEET

1/ Average temperature (degrees F) = $\frac{\text{Maximum temperature + Minimum Temperature}}{2}$

2/ Sunshine (lack of cloud cover):

Low (L) = 50% or more of the sky is covered all daytime hours by clouds, or half the sky is cloudy.

Medium (M) = Between low and high.

High (H) = Less than 20% of the sky is covered during daytime hours by clouds, or each day the sky has full cloud cover for two hours or less.

3/ Daily water use: Enter daily evapotranspiration (Et) estimates from a table for the appropriate crop and planting date. Enter the table with average temperature for the day and sunshine level (L, M, H). Enter the value thus determined in column (7) of the worksheet.

4/ Effective rainfall: Enter daily rainfall amounts when the amount exceeds 0.1 inch. Enter 75% of the measured amount.

5/ Net irrigation amount: Enter the net irrigation depth in inches. This is the amount replaced in the root zone, and is equal to the previous day soil water deficit, if sufficient water has been added by the irrigation to fill the root zone to field capacity. The net irrigation cannot exceed the net application as calculated below:

$$\text{Net application (inches)} = \frac{\text{Gross application (inches)} \times 100}{\text{Application efficiency (Ea)}}$$

6/ Soil water deficit: Compute as follows.

Soil water deficit (10) = Previous day deficit (10) + Daily water use (7) – Effective rainfall (8) – Net irrigation (9)

The soil water deficit is the amount of water (in inches) which must be added to the soil profile to bring it back to field capacity. It is equal to the net required irrigation when one irrigation is used to fill the root zone.

The gross amount of water which must be applied by the irrigation system to obtain the required net application is dependant on the efficiency of the application system. The gross amount is calculated as follows:

$$\text{Gross application} = \frac{\text{Soil water deficit (or net to be applied)} \times 100}{\text{Application efficiency (Ea)}}$$

7/ Comments: Comments may include such things as amount of moisture found in field check, gross irrigation amount, if cultivation took place, hail damage, condition of crop, etc.